

Petukhova I. O.

EXPERIMENTAL AND EDUCATIONAL IDEAS OF I. SIKORSKY

The timeliness of the research into the psychological and pedagogical heritage of I. Sikorsky (1842 - 1919), Doctor of Medicine and an educator, in the context of the objective evaluation of the child's personality is of great value. It characterizes the Ukrainian researcher as an innovator in the field of psychological and pedagogical experiment directed to the study of the child's psychological make-up.

It should be mentioned that Ivan Sikorsky's personality, his contribution to the development of pedagogical science and works in psychiatry are widely studied by the Ukrainian pedagogical historians N. Dichek, I. Prudchenko, S. Korniyev, L. Lysenko. However, the works that explored the idea of psychological and educational research should also be analyzed.

Scientific interests of the scholar in the sphere of child psychology revolved around fatigability, working capacity, intellectual performance, stages of development, factors of intellectual development and causes of its deviation, measurement of personality, which, in our opinion, should be given special attention.

In 1878, the Ukrainian educator initiated an experimental study of the working capacity and fatigability during intellectual work. According to Sikorsky, intellectual work consists of three components: 1) *exercise* characterized by the increase of mental capacity as a result of the

accumulation of workload in each successive period of time; 2) *enthusiasm* arousing as a result of a continuous, systematic, and error-free work; and 3) *fatigue*, when intellectual work slows down and, consequently, so does work speed [5].

This study was followed by an extensive psychological and educational experiment aimed at determining the working capacity of children aged 6-17 years. According to the conditions of the experiment, students were to take two dictations (15 minutes each): one in the morning before classes and another at three o'clock in the afternoon after classes. During the research, Sikorsky monitored the following:

- speed reading capacity;
- speed dictation-taking capacity;
- counting of printed letters in a row in groups of one, two, three letters, etc.;
- addition of single-digit numbers;
- learning numbers and words;
- maximum metronome click rate that does not confuse a child while counting;
- underlining familiar letters in a printed book [4, p. 17].

Somewhat disregarding grammatical mistakes (I. Sikorsky believed that correctness of writing cannot be measured at all), he focused on the "misprints" that were the result of attention deficit conditional on the fatigability of the nervous system. After collecting and analyzing all available "misprints", the scientist split them into the following groups: phonetic misprints (replacement and omitting of letters), graphic misprints (incorrect drawing of letters), mental (omitting or replacement of whole

words), and misprints that could not be classified. The experimental results were published in the journal "Preschool education" (1911) and demonstrated that most common were phonetic misprints. Graphic and mental misprints, as well as the misprints that could not be classified, were reported to be of significantly smaller percentage. Dictations written in the morning were characterized by considerably higher level of correctness in comparison with those written at three o'clock in the afternoon. The highest degree of intellectual capacity was achieved under the conditions of full immersion and enthusiasm [4]. It should be noted that the conclusions of I. Sikorsky remain relevant to the modern Ukrainian school, especially when teaching instructors how to give dictations.

Another important psychological and educational problem that was addressed by the educator was intellectual development. Exploring the causes of deviations, Sikorsky found out that neurodevelopment was dependent on such aspects of mental life, as will, mind, feelings. The harmonious development of these aspects leads to the comprehensive development of the personality. In this regard, the goal of the teacher is to regulate stimuli influencing the child's personality by means of careful choice of methods of influence. In order to detect deviations in mental development, the teacher should pay attention to the following factors that provoke deviations:

- amount of time that child spends on observation or intellectual work;
- quantity and quality of recreation;
- emotional state and mood;
- quality of food.

Apart from pedagogical observations of the child's development, deficient parenting practices also should be considered. Such deficient practices were divided into *relaxing parenting* (the child has no volitional stimuli, but excessive expressiveness of emotions and feelings), *demanding parenting* (oppression of the child's will), *neglect* (the child is deprived of the adults' genuine care). The circumstances mentioned above cause deviations in the formation of the personality. Therefore, the educator considered it important for the family and school to combine their efforts [2].

It should be noted that Sikorsky believed that each child goes through the following stages of development:

1. The period of first childhood (from birth to 7 years);
2. The period of second childhood (7-14 years);
3. Transitional age (12-15 years);
4. Youth (15-20 years).

During the *first childhood*, the child's family is the primary educational environment, because it provides comprehensive individual development. *The second childhood* is characterized by the relative mental maturity of the child. For this reason, a systematic plan of study is coming to the fore. During this period the child's feelings are better developed than the mind and volitional processes. Memory and voluntary attention should be trained. Child's state of mind at this age requires precise coordination from an experienced teacher. For this reason, during this period the family plays more of a supporting role, the priority given to the school. *Transitional age* is characterized by a relatively stronger will, ability to work persistently and hard, but by moral weakness. Cognitive sphere lacks critical analysis and generalization skills. *Youth* is characterized by the maximum excitability of

cognitive, as well as emotional and volitional spheres of personality. Emotions are deep and sincere. Will is described by determination, courage, and independence. Cognitive processes are marked by generalization and integrity [3]. Stages of development outlined by I. Sikorsky remain relevant in modern terms, considering that the main age characteristics suggested by the professor continue to be as valid today as they were a century ago.

Theoretical ideas behind the examination of the psychological make-up of children were implemented by I. Sikorsky in the private Therapeutic and Pedagogical Institute for retarded and neuropathic children, which was founded in Kiev in 1904.

I. Sikorsky suggested a classification of abnormal children:

- Mental deviations (according to the classification adopted in those days: idiots, imbeciles, morons);
- Moral deviations; and
- Mental disorders.

The above-mentioned defects were diagnosed in the psychological laboratory and pedagogical ambulatory with the help of a complex of medical, psychological and pedagogical methods. The *pedagogical methods of diagnostics* of deviations included the evaluation of the child's academic performance and learning capacity. The *psychological methods of diagnostics* of deviations envisioned the systematic assessment of the child's psychological attributes and activity. The main practical method that led to the diagnosis of mental retardation was the comparison of an abnormal to a normal child. These comparisons were recorded as a fraction, where the numerator implied the age of a normal child of equal mental development, and the denominator meant the age of a troubled child. Thus, index $2/9$ showed that the mental development of a nine-year old child was equal to

that of a two-year old normal child. Mental development was understood through mental processes (attention, speech, perception) [1].

Psychiatrist I. Sikorsky called for physicians, psychologists, and teachers to join efforts for the sake of the child's well being and to direct these efforts to a comprehensive study of the child. This thesis was announced as part of the report made during the II national congress of psychiatrists in Kiev on September 8, 1905. I. Sikorsky stated that education and psychiatry have a common goal, because these two sciences studied the human soul and, as such, needed full support. "The results of the professional remission of educators will, then, have to be corrected by psychiatrists" [8, p. 3]. Therefore, according to the researcher, human development from the pedagogical point of view is the cause of psychiatrists, teachers, physicians, and psychologists, whose common goal is to study child psychology and to develop major educational strategies to be implemented in schools. The main objective of a secondary school, according to the educator, is to preserve the intellectual sense, which, in the future, will foster the pursuit of the truth and make any ignorance unbearable . It is this intellectual sense that encourages children to engage in intellectual work, order ideas, systematize the acquired knowledge. The goal of the school is to stimulate mental and moral spheres, which should be always active, because the work done persistently leads to the improvement of the work itself. The highest form of intellectual work, according to I. Sikorsky, is enthusiasm, which arises from getting accustomed to persistent intellectual work.

Along with the observation and experimental methods of psychological and educational diagnostics, a special role was given to the biographical method, which was called by the psychiatrist a "psychological

biography", the inner side of the human soul that describes a psychological view on the human life and explains the importance of childhood for the entire life [7].

I. Sikorsky also addressed the anthropometric methods of research, including the Binet table, which described the correspondence between the biological age and the height and the size of the head. This approach was used by the researcher during his work in the Therapeutic and Pedagogical Institute.

Binet table featuring the height and the size of the head
in preschool and school children

Age	4	6	8	10	12	14	16	18
Height (cm)	98	108	121	130	143	143	170	174
Longitudinal diameter of the head (mm)	170	174	175	177	182	185	188	190
Transverse diameter of the head (mm)	141	142	145	146	148	150	152	156
Minimal frontal diameter (mm)	96	98	100	101	104	106	108	110

An important contribution to the study of the child's personality was the development of a comprehensive plan of the study of the child's mental state, which covered the following:

- Instincts as action patters that ensure vital functions and develop before consciousness;
- Will and movements as a precondition of purposeful activity;

- Mind, memory, intelligence as the mental processes that ensure quality of general mental development;
- Feelings;
- Complex mental states of a human being [6, p. 3].

The culmination of I. Sikorsky's psychological and educational views was the foundation of Fröbel Pedagogical Institute (1907), which provided professional training for those who wanted to work with children. According to the curriculum, the following disciplines were offered in this institute: "Psychology with an introduction to the foundations of the child's soul doctrine", "Pedagogy," "Human anatomy and physiology with a more detailed summary of the nervous system doctrine including introduction to its pathology," "Hygiene: the basics of the child's hygiene", "Sick children care" "Introduction to experimental didactics", "School studies", "History of education", "Soul of the child", "Difficult children", etc. In 1908, the Kyiv Fröbel Association was founded, whereas in 1911 the office of experimental psychology for regular medical and educational research of children was established.

Thus, the contribution of I. Sikorsky to the development of psychological and educational testing in the territory of modern Ukraine is truly invaluable. Retrospective analysis of literature allows us to state that scientific research of the Ukrainian scholar gave insights into the main aspects of children's psychological make-up, including the reasons for changes in working capacity and fatigability (1878). The spectrum of causes of mental deviations was revealed (1884), stages of development with the description of children's mental features on each stage were elaborated (1901). There was created the Therapeutic and Pedagogical Institute for retarded and neuropathic children (1904), as well as Fröbel Education

Institute, which trained professionals for education (1907). In 1912, a plan of the children's mental status assessment was proposed. We agree with the view of the modern historian of pedagogy N. P. Dichek that the list of the leading researchers into the child's psychological make-up, such as O. Nechayev, G. Rossolimo, O. Lazursky, V. Kashchenko, should be extended to include I. Sikorsky. However, we believe that the name of the prominent Ukrainian educator should be given a lead because, as the chronological approach suggests, his experiments were among the earliest and, as such, were crucial for the subsequent formation of the experimental views of his Russian colleagues. It should be mentioned that today the pedagogical heritage of the Ukrainian researcher I. O. Sikorsky remains of topical significance and requires a detailed study.

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Петухова І. О. Експериментально-педагогічні ідеї І. Сікорського

У статті на основі аналізу психолого-педагогічної спадщини І. Сікорського розкрито основні погляди педагога на проблеми дослідження дитячої особистості. Автором виділено провідні положення вченого, які він уважав найбільш впливовими та вагомими в процесі диференціації дитячої психіки. Також подано загальну характеристику поглядів І. Сікорського на причини відхилень розумового розвитку.

Ключові слова: працездатність, утомлюваність, розумова діяльність, методи діагностики, вікова періодизація.

Петухова И. А. Экспериментально-педагогические идеи И. Сикорского

В статье на основе анализа психолого-педагогического наследия И. Сикорского раскрыты основные взгляды на проблемы исследования детской личности. Автором выделены основные положения ученого, которые он считал наиболее влиятельными и весомыми в процессе дифференциации детской психики. Также подано общую характеристику взглядов И. Сикорского на причины отклонений в умственном развитии.

Ключевые слова: работоспособность, утомляемость, умственная деятельность, методы диагностики, возрастная периодизация.

Petukhova I. O. Experimental and Educational Ideas of I. Sikorsky

The analysis of the psychological and pedagogical heritage of I. Sikorsky presented in the article reveals the major views regarding the research into the child's personality. The author outlines the approaches that the scientist considered the most influential and weighty in the process of differentiation of the child's psychological make-up. The article also features a general description of I. Sikorsky's views on the causes of mental deviations.

Key words: working capacity, fatigability, intellectual work, methods of diagnostics, stages of development.

The article was received by the Editorial Office on 27.12.2011.

The article was put into print on 30.03.2012.